State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

April 28, 2006

Board of Land
and Natural Resources
Honolulu, Hawaii

THE DIVISION OF AQUATIC RESOURCES REQUESTS BOARD OF LAND AND NATURAL RESOURCES (BLNR) AUTHORIZATION/APPROVAL TO ISSUE ONE (1) NORTHWESTERN HAWAIIAN ISLANDS (NWHI) RESEARCH, MONITORING AND EDUCATION PERMIT TO CYNTHIA VANDERLIP OF THE STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES, DIVISION OF FORESTRY AND WILDLIFE, FOR THE REMOVAL OF MARINE DEBRIS AT KURE ATOLL

Submitted herewith for your authorization and approval is a request for issuance of a NWHI Access Permit to Cynthia A. Vanderlip of the State of Hawaii DLNR-DOFAW, and her designees. The Research, Monitoring and Education Permit, described below, will allow activity to occur in the NWHI State marine Refuge (0-3 miles) waters surrounding Kure Atoll. The activities covered under this permit will occur from May 13 to September, 2006.

Thousands of pounds of derelict fishing gear drift into Kure Atoll's lagoon annually. The debris washes into the lagoon and snags on coral heads, killing the coral and destroying the coral reef ecosystem. Monk seals, turtles, seabirds, fish and invertebrates are injured or killed when they become entangled. Since 2002, DLNR/DOFAW personnel have removed an average of 3000 pounds of marine debris per year. The removal of this marine debris helps protect a wide assemblage of wildlife and habitat within the Kure Atoll lagoon.

The proposed activities (below) are consistent with and support the purposes of the Refuge, primarily protection and restoration of the resources within the marine refuge.

Debris, primarily fishing gear, is removed from the Kure Atoll lagoon as follows: Nets are cut, not pulled, from the reef to lessen the impact on the corals. Divers using snorkeling equipment are careful to not damage the surrounding reef while they remove debris. Vessels with shallow drafts are positioned in close proximity to the debris to lessen the effect of snagging the net on other corals as it is transported to the vessel. Kayaks are used in areas that are too shallow for motor vessels. Anchoring is limited to sandy areas far enough away from the reef to avoid chain and line damage to the reef. Debris is catalogued and stored on Kure's pier under tarps until NOAA marine debris teams remove it. Cynthia Vanderlip is listed on the NMFS Hawaiian monk seal permit, which allows her to disentangle monk seals and turtles.

REVIEW PROCESS:

This permit application was received by the Division of Aquatic Resources on April 7, 2006. It was sent out for review and comment to the following scientific entities: Division of Aquatic Resources staff (5), Division of Forestry and Wildlife, Northwest Hawaiian Islands Reserve, and the United States Fish and Wildlife Service. Native Hawaiians from the Office of Hawaiian Affairs, and Kaho'olawe Island Reserve Commission were also consulted.

Comments received from the Scientific Community (DAR and the NWHI Reserve) are summarized as follows:

1) The removal of marine debris from Kure Atoll lagoon should be supported
2) The applicant provides good protocols for dealing with invasive species
3) Protocols for minimizing disturbance to benthic species and wildlife should be followed
4) All take should be documented, and
5) Visual documentation should be provided both pre- and post-marine debris removal for activities affecting large (>1 m) colonies of any live coral or coralline algae live rock
6) Coral fragments should be returned to their place of origin and live corals not exposed to air during the debris removal process

RESPONSE:

Vanderlip provided a response to reviewer concerns via email (attached), which is summarized as follows:

1) She provided a comprehensive protocol for minimizing disturbance to benthic species and wildlife both within the original permit application and in the subsequent email
2) Photographic documentation of any debris removal activity affecting large colonies will be provided
3) Corals and other organisms will be returned to their place of origin
4) In the event that a large colony is damaged, an attempt will be made to cement the colony back into place
5) If a net or other debris has become so entangled as to be an integral part of the reef, no attempt shall be made to remove it

AMENDMENTS REQUESTED SUBSEQUENT TO APPLICATION SUBMISSION:

Vanderlip requested via email on April 17, 2006 that she be allowed to photograph spinner dolphins for identification purposes. This work will complement a genetic project for which a permit application has been received, but not yet reviewed.

FINAL STAFF RECOMMENDATIONS:

1) Approve the request for the documentation and removal of marine debris from the lagoon at Kure Atoll, with specified conditions as above.
2) Approve the request to take photographs of spinner dolphins at Kure Atoll

RECOMMENDATION:

"That the Board authorize and approve, with stated conditions, a Research, Monitoring and Education Permit to Cynthia Vanderlip of the State of Hawaii Division of Forestry and Wildlife, for activities and access within the State waters of the NWHI."

Respectfully submitted,

DAN POLHEMUS
Administrator

APPROVED FOR SUBMITTAL

PETER T. YOUNG
Chairperson

APPENDIX 1

State of Hawai'i
DLNR
Northwestern Hawaiian Islands State Marine Refuge
Permit Application Form
Draft

For Office Use Only
Permit No:
Expiration date:
Date Appl. Received: 4/07/06
Appl. Fee received: N/A
NWHI Permit Review Committee date: 4/10/06
Board Hearing date:
Post to web date:

Type of Permit

☒ I am applying for a **Research, Monitoring & Education** permit. (Complete and mail Application)
- ☐ This application is for a NEW project in the State Marine Refuge.
- ☒ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

☐ I am applying for a permit for a **Native Hawaiian** permit. (Complete and mail Application)

- ☐ This application is for a NEW project in the State Marine Refuge.
- ☐ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

☐ I am applying for a **Special Activity** permit. (Complete and mail Application)

- ☐ This application is for a NEW project in the State Marine Refuge.
- ☐ This application is for an ANNUAL RENEWAL of a previously permitted project in the State Marine Refuge.

Briefly describe **Special permit** activity:

When will the NWHI activity take place?

☒ **Summer** (May-July of 2006 (year)
Note: Permit request must be received before February 1st
Specific dates of expedition depart May 8

☒ **Fall** (August-November) of 2006 (year)
Note: Permit request must be received before May 1st
Specific dates of expedition Return September 2006

☐ **Other**

NOTE: INCOMPLETE APPLICATIONS WILL NOT BE ACCEPTED

Please Send Permit Applications to:

NWHI State Marine Refuge Permit Coordinator
State of Hawai'i
Department of Land and Natural Resources
Division of Aquatic Resources
1151 Punchbowl Street, Room 330
Honolulu, Hawai'i 96813

NWHI State Marine Refuge Permit Application
See Appendix 2 for Application Instructions

Section A – Applicant Information

1. Project Leader (attach Project Leader's CV or resume) ☒ CV attached Vanderlip, Cynthia A Name: Last, First, Middle Initial	Project Leader Title
2. Mailing Address (Street/PO Box, City, State, Zip) DLNR/DOFAW 2135 Makiki Height Dr Honolulu Hawaii 96822	Telephone (808) 352-6218 Fax (808) 973-9781 Email Address: cici55@hotmail.com
3. Affiliation (Institution/Agency/Organization) DLNR/DOFAW RCUH	For graduate students, Major Professor 's Name & Telephone N/A

4. Sub-Permittee/Assistant Names, Affiliations, and Contact Information ☐ CV or resume attached

Jacob Eijzenga DLNR/DOFAW RCUH 2135 Makiki Height Dr Honolulu Hawaii 96822 808-721-0698	Heather Eijzenga DLNR/DOFAW volunteer 1662 Lewalani Dr. apt. 202 Honolulu, Hawaii 96822 808-532-1587	Bradley Vanderlip DLNR/DOFAW volunteer 12519 El Camino, unit E San Diego Calif. 858-524-8811
Christina McGuire DLNR/DOFAW RCUH 718 18th Ave # B2 Honolulu Hawaii 96816 808-542-1559	Amarisa Marie DLNR/DOFAW volunteer PO Box 6395 Kaneohe, Hawaii 96744 808-284-6585	

5. Project Title
Marine Debris Removal from Kure Atoll

6. Applicant Signature Cynthia Vanderlip	7. Date (mm/dd/yyyy) 040506

Section B: Project Information

8. **(a) Project Location**

☒ NWHI State Marine Refuge (0-3 miles) waters surrounding:

- ☐ Nihoa Island
- ☐ Necker Island (Mokumanamana)
- ☐ French Frigate Shoals
- ☐ Laysan
- ☐ Maro
- ☐ Gardner Pinnacles
- ☐ Lisianski Island, Neva Shoal
- ☐ Pearl and Hermes Atoll
- ☒ Kure Atoll, State Wildlife Refuge
- ☐ Other NWHI location

Describe project location (include names, GPS coordinates, habitats, depths and attach maps, etc. as appropriate).

Kure Atoll Lagoon

(b) check all actions to be authorized:

☐ Enter the NWHI Marine Refuge waters

☐ Take (harvest) ☐ Possess ☐ Transport (☐ Inter-island ☐ Out-of-state)

☐ Catch ☐ Kill ☐ Disturb ☐ Observe

☒ Anchor ☐ Land (go ashore) ☐ Archaeological research

☒ Interactions with Sea Turtles or Monk Seals

☒ Interactions with Seabirds

☐ Interactions with Live Coral, Ark Shells or Pearl Oysters

☐ Interactions with Jacks, Grouper or Sharks

☐ Conduct Native Hawaiian religious and/or cultural activities

☒ Other activities - Marine habitat restoration and disentangling monk seals, seabirds, turtles, fish, invertebrates and corals.

(c) Collection of specimens – collecting activities (would apply to any activity):

Organisms or objects (List of species, if applicable, add additional sheets if necessary):

Common name	**Scientific name**	**No. & size of specimens**	**Collection Location(s)**

(d) What will be done with the specimens after the project has ended?

N/A

(e) Will the organisms be kept alive after collection? ☐ yes ☐ no

- Specific site/location

- Is it an open or closed system? ☐ open ☐ closed
- Is there an outfall? ☐ yes ☐ no
- Will these organisms be housed with other organisms? If so, what are the other organisms?

N/A

(Please attach additional documentation as needed to complete the questions listed below)

9. Purpose/Need/Scope:

- State purpose of proposed activities:

Thousands of pounds of derelict fishing gear drift into Kure Atoll's lagoon annually. The debris washes into the lagoon and snags on coral heads, killing the coral and destroying the coral reef ecosystem. Monk seals, turtles, seabirds, fish and invertebrates are injured or killed when they become entangled. Since 2002, DLNR/DOFAW personnel have removed an average of 3000 pounds of marine debris per year.

Describe how your proposed activities will help provide information or resources to fulfill the State Marine Refuge purpose and to reach the Refuge goals and objectives.

Documenting the type of debris removed helps managers address the cause of the problem. Documenting where and when the debris was found helps managers project how much effort is needed and where to focus efforts in the future.

- Give reasons why this activity must take place in the NWHI and cannot take place in the Main Hawaiian Islands, or elsewhere.

Protection and restoration of Kure Atoll's marine ecosystem are objectives of the NWHI State Marine Refuge.

- Describe context of this activity, include history of the science for these questions and background.

NOAA has been removing marine debris from the NWHI since the 1980's. This action is necessary to reduce wildlife mortality and habitat destruction.

- Explain the need for this activity and how it will help to enhance survival or recovery of refuge wildlife and habitats.

Removing nets and lines lessens the negative impact of marine debris on the marine ecosystem in the NWHI State Marine Refuge.

- Describe how your proposed project can help to better manage the State Marine Refuge.

Documenting the type of debris removed helps managers address the cause of the problem. Documenting where and when the debris was found helps managers project how much effort is needed and where to focus efforts in the future.

10. Procedures (include equipment/materials)

Nets are cut, not pulled, from the reef to lessen the impact on the corals. Divers using snorkeling equipment are careful to not damage the surrounding reef while they remove debris. Vessels with shallow drafts are positioned in close proximity to the debris to lessen the effect of snagging the net on other corals as it is transported to the vessel. Kayaks are used in areas that are too shallow for motor vessels. Anchoring is limited to sandy areas far enough away from the reef to avoid chain and line damage to the reef. Debris is catalogued and stored on Kure's pier under tarps until NOAA marine debris teams remove it.

11. Funding sources (attach copies budget & funding sources).

A $30,000/year federal grant from the NWHI Coral Reef Ecological Reserve helps to support this activity. Other funding sources come from DLNR/DOFAW.

12. List all literature cited in this application as well as all other publications relevant to the proposed project.

Donohue, M.J., R.C. Boland, C.M. Sramek, and G.A. Antonelis. 2001. Derelict fishing gear in the Northwestern Hawaiian Islands: Diving surveys and debris removal in 1999 confirm threat to coral reef ecosystems. Marine Pollution Bulletin 42(12): 1301-1312.

Henderson, J.R. 2001. A pre- and post-MARPOL Annex V summary of Hawaiian monk seal entanglements and marine debris accumulation in the northwestern Hawaiian Islands, 1982-1998. Marine Pollution Bulletin 42(7): 584-589.

13. What types of insurance do you have in place? (attach documentation)

☐ Wreck Removal

☐ Pollution

14. What certifications/inspections do you have scheduled for your vessel? (attach documentation)

☒ Rat free ☒ tender vessel ☒ gear/equipment

☒ Hull inspection ☐ ballast water N/A

DLNR vessels:
Vessel 1: 17' Twin Vee Power Cat vessel with 25 hp 4-stroke Yamaha engine, and a 4-stroke 9.9 Honda engine.
Vessel 2. 10' Apex inflatable with a 4-stroke 15 hp Honda engine.
Before departure, both vessels are washed, fumigated and inspected for alien terrestrial and aquatic species.
All gear is soaked in 100% fresh water for 24 hours. Care is taken to open all pockets and zippered compartments before soaking in fresh water. Life vests, cushions and lines are washed and frozen for 48 hours.

15. Other permits (list and attach documentation of all other required Federal or State permits).

Cynthia Vanderlip is listed on the NMFS Hawaiian monk seal permit, which allows her to disentangle monk seals and turtles.

16. Project's relationship to other research projects within the NWHI State Marine Refuge, National Wildlife Refuge, NWHI Coral Reef Ecosystem Reserve, or elsewhere.

This project is funded by NWHI Coral Reef Ecosystem Reserve, DLNR/DOFAW and DAR/DOFAW.

Section C: Logistics

17. Time Frame: *May 8 to September*

Project Start Date	Project Completion Date
May 8	*September*

Dates actively inside the State Marine Refuge.

May 10 to September

Personnel schedule in the State Marine Refuge (describe who will be where and when).

Heather and Jacob Eijzenga and Brad Vanderlip will be at Kure from May 13 to July 24. Amarisa Marie and Christina McGuire will be at Kure from the end of July to September. Cynthia Vanderlip will be at Kure from May 13 to September.

18. Gear and Materials

☒ Dive equipment ☐ Radio Isotopes

☐ Collecting Equipment ☐ Chemicals (specify types)

Snorkeling equipment

19. Fixed installations and instrumentation.

☐ Transect markers ☐ Acoustic receivers

☐ Other (specify)

20. Provide a time line for sample analysis, data analysis, write-up and publication of information.

Cynthia Vanderlip will submit an annual report within 6 months of the end of the field season.

21. **Vessel Information**:

Vessel Name: *Sette and the Hi'ialakai* IMO Number _____

Vessel Owner _____ Flag _____

Captain's Name _____ Chief Scientist or Project Leader _____

Vessel Type _____ Call sign _____

Length _____ Gross tonnage _____

Port of Embarkation _____

Last port vessel will have been at prior to this embarkation _____

Total Ballast Water Capacity: Volume _____m3 Total number of tanks on ship _____

Total Fuel Capacity: _____ Total number of fuel tanks on ship _____

Other fuel/chemicals to be carried on board and amounts:

Number of tenders/skiffs aboard and specific type of motors:

Does the vessel have the capability to hold sewage and grey-water? Describe in detail.

Does the vessel have a night-time light protocol for use in the NWHI? Describe in detail (attach additional pages as necessary)

On what workboats (tenders) will personnel, gear and materials be transported within the State Marine Refuge?

How will personnel, gear and materials be transported between ship and shore?

If applicable, how will personnel be transported between islands within any one atoll?

I would like to add the following information to the methods I outlined on my permit.
Mahalo for your comments,
Cynthia

Method for Removing Nets and Lines From Coral Reefs on Kure Atoll

Coral reefs are described here as:
1) Calcium carbonate substrate with live coral, coralline algae and other species of algae living on it.
2) Calcium carbonate substrate that does not appear to be alive.

Large nets and lines entangled on coral reefs are carefully removed in order to avoid further damaging the coral reef ecosystem. Using the technique of cutting the debris and unraveling it from around the coral is the most effective method for accomplishing this goal. Live coral and coralline algae pieces found entangled in the debris are placed back on the reef before removing the debris from the water. Dead coral and coralline algae pieces removed from the debris are placed on substrate that will not cause damage to live corals or algae. Live animals found on the debris after it has been loaded onto the boat are returned to the reef.

Photo documentation of the debris before and after the area has been cleared is accomplished with underwater cameras. GPS documentation of the impacted area provides the opportunity to document recovery of the site. In the past four years, small pieces of coral (< 10 cm) have been occasionally broken during the process of removing debris from Kure's coral reefs. In the unlikely event that a large piece of live coral or coralline algae (> 1 meter) is broken during a net removal process, DLNR staff will document the site and the fragment with photographs and report the incident in the annual Kure Atoll Field Report. The fragment will be secured back into the substrate where it was growing if the area has features that will support it. This action will increase the chances that the fragment will cement itself back onto the substrate.

In rare cases, nets and lines on the reef are left in place. The decision to not remove debris is based on the following criteria:
1) The net and/or line are completely secured to the reef with heavy growths of coralline algae and coral encapsulating it. In this case, the debris has become an integral part of the reef and removal would cause substantial and unnecessary damage to the reef.

Curriculum vitae

Cell: (808) 352-6218
Email: cici55@hotmail.com

Hawaii Department of Land and Natural Resources
Division of Forestry and Wildlife
2135 Makiki Heights Drive
Honolulu, Hawaii 96822

Cynthia A. Vanderlip

EMPLOYMENT HISTORY

Senior Biological Technician
Research Corporation of the University of Hawaii
Department of Land and Natural Resources, Division of Forestry and Wildlife
Fieldwork conducted at Kure Atoll State Wildlife Sanctuary
May 14, 2003 – Present

- Field camp manager for Kure Atoll Wildlife Sanctuary.
- Plan and coordinate remote field camp.
- Purchase equipment and supplies for 6-month field camp.
- Pack all supplies and equipment according to ecological protection protocols.
- Supervise and support researchers, volunteers and media personnel working on Kure.
- Monitor seabirds, spinner dolphins and monk seals.
- Restore seabird habitat.
- Operate and maintain small boats.
- Remove derelict fishing gear from reef and islands.
- Maintain facilities including solar electrical system and cistern.
- Write annual field reports
- Train field personnel about ecological protection and safety protocols for the NWHI.
- Promote international media attention about Kure Atoll.
- Secure grants and funding for operations at Kure Atoll.
- Identified and developed appropriate wildlife monitoring protocols and data forms.
- Maintain and operate communication systems including: satellite email and phone, SSB Radio, VHF Radio, EPIRB.

Procurement Specialist for Kure Atoll
Contractor for Department of Land and Natural Resources - Honolulu, Hawaii
February 24, 2003 – May 13, 2003

- Researched and purchased supplies and equipment for upgrading Kure Atoll field station.
- Purchased a 17' vessel, solar electrical system, telecommunication equipment, and supplies for facility maintenance projects.
- Packed supplies and equipment for transport to Kure Atoll using DLNR and USFWS quarantine protocols.
- Arranged for transportation of field personal, equipment and supplies to Kure Atoll.
- Identified and met with potential granting agencies and partners to support Kure Atoll research and management projects.
- Identified and developed appropriate wildlife monitoring protocols and data forms for research at Kure.

Biological Technician
Department of Land and Natural Resources - Honolulu Hawaii,
Fieldwork conducted at Kure Atoll, NWHI
May – August 2002

- Set up and maintained a remote field camp at Kure Atoll.
- Conducted abundance and distribution surveys for 14 species of breeding seabirds.
- Banded Albatross, Brown and Masked Boobies, Christmas Shearwaters and White Terns.
- Removed invasive plants and collected native plant seeds for propagation.
- Photo documented habitats, buildings, operations and wildlife.
- Performed building and water tank maintenance.
- Operated small boats and insured all boat operations were conducted safely.
- Conducted spinner dolphin research.
- Document monk seal life threatening conditions, births and deaths. Tag and measure weaned pups. Disentangle seals caught in marine debris.

Co-investigator / Boat Captain
Texas Institute of Oceanography, Texas A&M University and University of Hawaii at Manoa -
Fieldwork conducted at Midway Atoll, Kure Atoll, French Frigate Shoals, Niihau and Oahu
August – October 2001, August-September 2002 and August-September 2003
Member of a team of scientists studying the population structure, socio-ecology, and population genetics of spinner dolphins inhabiting the Hawaiian Archipelago.

- Planned and provisioned expeditions
- Managed and collected GPS data on locations of spinners
- Collected and preserved DNA samples from spinners using sterile techniques.
- Captained vessels
- Coauthored a paper (see publications)

Biological Technician Volunteer
US Fish and Wildlife Service – Honolulu, Hawaii
Fieldwork conducted at Midway Atoll National Wildlife Refuge
January-March 2002

- Monitored and banded Laysan and Blackfooted Albatross, Red-tailed Tropic Birds, Brown Noddies and White Terns.
- Removed invasive plant species in sensitive seabird habitat.
- Conducted monk seal surveys.
- Operated vessels transporting personnel, equipment and supplies between Midway's islets.

Program Leader, Boat Captain, Research Assistant, Manager, Naturalist
Oceanic Society - San Francisco, California
Fieldwork conducted at Midway Atoll, NWHI
March 1997 – January 2002

- ***Program Leader*** - Developed and led practical field courses for ecotourists on habitat restoration and Hawaiian monk seals.
- ***Boat Captain*** - Operated a 30' pontoon vessel utilized for spinner dolphin research and natural history snorkeling tours. Maintained vessel to meet US Coast Guard regulations.
- ***Research Assistant*** - Researched the social ecology and population biology of Hawaiian spinner dolphins. Monitored the daily occurrence of spinners inside Midway's lagoon.

Supervised and trained volunteers to record environmental conditions and dolphin distribution and abundance data. Coauthored a paper on the findings of this research (see publications).

- ***Manager*** - Coordinated and developed ecotourism and research projects at Midway Atoll. Met regularly with United States Fish and Wildlife Service personnel, Midway Phoenix Corporation managers and Oceanic Society researchers to discuss personnel ,visitor and wildlife management issues. Maintained Oceanic Society's vehicles, equipment, office and laboratory.
- ***Naturalist*** - Developed and led natural and human history interpretive tours. Presented outdoor natural history talks and classroom lectures on geology, coral reef biology, seabirds, monk seal natural history, management and research.

Biological Research Technician and Co-investigator
Hawaii Wildlife Fund - Volcano, Hawaii
Fieldwork conducted at Midway Atoll National Wildlife Refuge
August 1997 – February 2000

- Conducted year-round population monitoring of endangered Hawaiian monk seals and threatened green sea turtles.
- Conducted patrols and censuses on foot and by kayak on three islands within Midway Atoll and along the emergent reef surrounding the atoll.
- Presented lectures on monk seal biology, ecology, conservation and management for visitors, USFWS staff and Midway residents.
- Documented human-caused disturbance to seals and turtles and assisted USFWS with disturbance prevention.
- Wrote annual technical reports on Midway's monk seals for NMFS. Wrote monthly updates on monk seal and turtle monitoring for USFWS.

Vessel Captain and First Mate
Midway Phoenix Corp. Sport Fishing and Diving, Midway Atoll, NWHI
March 1997-Jan 2000 (periodic charters)
Operated all of Phoenix Corporations vessels ranging in length from 22'to 100' in the vicinity of Midway Atoll and Kure Atoll. Charters accommodated researchers, divers, fishermen and professional photographers.

Biological Technician Volunteer
National Park Service, Resource Management Division, Hawaii Volcanoes National Park
August - September 1996

- Monitored endangered Hawksbill sea turtles' nesting and hatching activities at three remote sites on the island of Hawaii.
- Restrained, measured and tagged adult nesting turtles.
- Rescued stranded hatchlings and excavated nests.
- Mapped nesting sites and recorded data on reproductive success.
- Controlled predators (mongooses, rats and feral cats) affecting hatching success of turtles.

Biological Technician
National Marine Fisheries Service - Honolulu, Hawaii
Fieldwork conducted at Kure Atoll and Laysan Island, NWHI
February – August 1994

- Conducted Hawaiian monk seal population monitoring.

- Set up and maintained remote field camps at Kure and Laysan.
- Conducted daily patrols and weekly censuses to identify seals, record behaviors and assess health.
- Performed necropsies and photo-documented injuries.
- Disentangled seals caught in marine debris.
- Restrained, tagged and measured all age classes of seals.
- Collected behavioral data on adult male seals exhibiting aggressive behavior toward adult females and juvenile seals.
- Captured twenty-two male seals and relocated them to the Main Hawaiian Islands.
- Constructed a temporary ocean enclosure to hold seals.
- Trapped reef fishes and lobsters to feed seals in the enclosure.

Biological Technician
U.S. Fish and Wildlife Service, Honolulu, Hawaii
Fieldwork conducted at French Frigate Shoals, NWHI
March 1993 – July 1993

- Monitored several species of nesting seabirds for reproductive success, abundance and distribution.
- Assisted with the maintenance of remote field camp.
- Monitored and banded Brown Noddies, Masked Boobies, Red-footed Boobies and Brown Boobies for reproductive success. Conducted weekly shore bird counts.

Marine Option Program Student Research Project
University Of Hawaii Marine Option Program - Windward Community College – Oahu
Fieldwork conducted on Midway Atoll National Wildlife Refuge
September 1991- June 1992

- Designed and implemented a field study on the occurrence of ciguatera toxin in monk seal prey species at Midway Atoll.
- Coordinated and executed field camp logistics.
- Captured fish using spears, traps, hook and line.
- Tested fish specimens for ciguatera toxin.
- Presented findings at University of Hawaii, Hilo Marine Option Program Symposium.
- Co-authored a scientific paper.

Biological Technician
National Marine Fisheries Service – Honolulu, Hawaii
Fieldwork conducted at Kure Atoll
1989-1991

- Relocated 12 rehabilitated Hawaiian monk seal pups to Kure Atoll over a three-year period.
- Constructed two ocean and beach enclosures for the monk seal pups.
- Trapped live fish and invertebrates and stocked the enclosures with the prey items.
- Conducted monk seal censuses.
- Restrained, measured, tagged and weighed weaned pups and juvenile seals.
- Operated and maintained a small whaler within the atoll.
- Disentangled seals caught in marine debris.

Marine Option Program Student Coordinator
Windward Community College – Kaneohe, Hawaii
September 1991- June 1992

- Scheduled marine related lectures and field trips for students.
- Taught a non-credit class on identification of reef fish, invertebrates, coral and algae in preparation for Biology 264 (Quantitative Underwater Ecological Surveying Techniques).
- Maintained and developed a student study center with research materials.
- Produced monthly newsletters.

Aquarium Biologist
Waikiki Aquarium - Waikiki, Hawaii
January 1989 - October 1991

- Head trainer responsible for the husbandry and training of two Hawaiian monk seals.
- Coordinated and assisted National Marine Fisheries Service with captive monk seal research.
- Maintained salt and fresh water displays.
- Conducted interpretive presentations for the public.
- Maintained monk seal records on feeding schedules, behaviors, medications, supplements and general health.
- Managed the supply of food for all aquarium animals.
- Trained and supervised monk seal volunteers.
- Maintained filtration systems and kept maintenance logs.
- Collected aquarium specimens from Hawaiian reefs.

EDUCATION AND CERTIFICATIONS

1992 - AA Degree - Windward Community College – Kaneohe, Hawaii
1992 - Graduate of the University of Hawaii's Marine Option Program

US Coast Guard Captains License
1997 - 25 ton Masters License with towing endorsement. License number 781988
2005 - 50 ton Masters License with towing endorsement. License number 781988

DOI Boat Handling and Safety Course
2002 - Midway Atoll

Wilderness Medicine Institute (NOLS), First Aid Course
Three day course taken in Honolulu. Certificates for the years: 2002, 2003, 2004 and 2005.

Scuba Diver
1991 -1992 - University of Hawaii, Scientific Diver
1991 – Completed UH course Quantitative Underwater Ecological Surveying Techniques
1978 - Scuba Certification (PADI)

PUBLICATIONS AND TECHNICAL REPORTS

Karczmarski, L., Würsig B., Gailey G., Larson K., **Vanderlip, C.** 2005. Spinner dolphins in a remote Hawaiian atoll: social grouping and population structure. Behavioral Ecology 16(4): 675-685.

Andrews, K., L. Karczmarski, W. Au, S. Richards, **C. Vanderlip,** R.Toonen. (in press). Patterns of genetic diversity of the Hawaiian Spinner Dolphin *(Stenella longirostris)*: Atoll Research Bulletin

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